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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,074	10/02/2006	Geoffrey Harding	11HP201654	3810
52082 7590 12/27/2007 GENERAL ELECTRIC CO. GLOBAL PATENT OPERATION 187 Danbury Road Suite 204 Wilton, CT 06897-4122			EXAMINER YUN, JURIE	
			ART UNIT 2882	PAPER NUMBER
			NOTIFICATION DATE 12/27/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gpo.mail@ge.com  
allyson.carnaroli@ge.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,074	<b>Applicant(s)</b> HARDING, GEOFFREY	
	<b>Examiner</b> Jurie Yun	<b>Art Unit</b> 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/19/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the steps leading to production of X-radiation and stronger turbulence. Also, there is lack of antecedence for "the electron window" and "the ridges". Basically, there are no method steps recited.
3. Regarding claims 2, 4, and 5, the phrase "in particular" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5, and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Harding et al. (WO 03/077277 A1). The following rejection is based on the disclosure of Harding et al. (USPN 6,961,408 B2), which is an English language translation of Harding et al. (WO 03/077277 A1).

6. With respect to claims 1 and 9, Harding et al. disclose electron window (Fig. 8. - 75) for a liquid-metal anode in the form of a membrane, which has ridges (81) and depressions, characterized in that it has an embossed structure and both the ridges and the depressions are part-surfaces which are connected to each other via connection flanks (the areas on the sides of the ridges, 81).

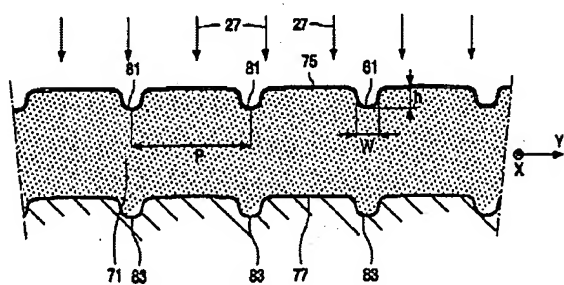


FIG. 8

7. With respect to claim 2, Harding et al. disclose the membrane consists of a metal foil, a diamond film, a ceramic material or a monocrystal, in particular made of cubic boron nitride (column 5, lines 51-55).

8. With respect to claim 3, Harding et al. disclose the depressions and/or the ridges are arranged in a virtual regular grid structure (column 11, lines 58-61).

9. With respect to claim 5, Harding et al. disclose the electron window (75) is formed bent, in particular like a cut-out section of a cylinder surface.

10. With respect to claim 7, Harding et al. disclose liquid-metal anode with a pump (21), a cooling system (19), a line (9 & 17) and a liquid metal which can be pumped through the line by means of the pump, wherein there is arranged in the line an anode module into which an electron window (75) according to claim 1 is inserted, wherein the

electron window is inserted into the line such that the ridges (81) point towards the inside of the line and are in contact with the liquid metal.

11. With respect to claim 8, Harding et al. disclose X-radiator (Fig. 1) with an electron source (5) for the emission of electrons (27) and a liquid-metal anode according to claim 7 emitting X-ray beams (31) when struck by the electrons.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harding et al. (WO 03/077277 A1) as applied to claim 1 above, and further in view of Chalker (EP 0 676 772 A1). The following rejection is based on the disclosure of Harding et al. (USPN 6,961,408 B2), which is an English language translation of Harding et al. (WO 03/077277 A1).

14. With respect to claim 4, Harding et al. do not specifically disclose the depressions (areas between ridges, 81) and/or the ridges (81) are formed as polygonal units, in particular square or hexagonal units. Chalker discloses the depressions and/or the ridges are formed as polygonal units, in particular square or hexagonal units (4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Harding et al. to have the depressions and/or the ridges formed as

polygonal units, in particular square or hexagonal units, to form a strong window, as taught by Chalker.

15. With respect to claim 6, Harding et al. disclose the depressions and/or the ridges are from 10 to 250 micrometers high (column 12, lines 1-4), but do not specifically disclose the membrane is from 5 to 50 micrometers thick. Harding et al. do not disclose the membrane thickness. Chalker discloses the membrane is from 5 to 50 micrometers thick (column 1, lines 4-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the membrane of Harding et al. is from 5 to 50 micrometers thick, because this is typical, as taught by Chalker.

#### ***Allowable Subject Matter***

16. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter: Prior art fails to disclose an electron window for a liquid-metal anode in the form of a membrane, wherein the depressions and/or ridges are 50 micrometers high and the membrane is 20 micrometers thick, as claimed in claim 10.

#### ***Conclusion***

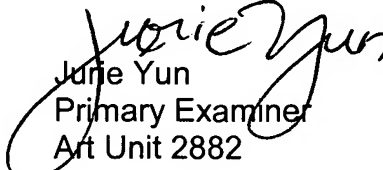
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Julie Yun  
Primary Examiner  
Art Unit 2882

December 19, 2007